SONY

DIGITAL VODEOCASSETTE RECORDER

MSW-A2000/A2000P

MPEG IMX

INSTALLATION MANUAL
1st Edition
Serial No. 10001 and Higher: MSW-A2000
Serial No. 40001 and Higher: MSW-A2000P

⚠警告

このマニュアルは，サービス専用です。
お客様が，このマニュアルに記載された設置や保守，点検，修理などを行うと感電や火災，人身事故につながることがあります。
危険をさけるため，サービストレーニングを受けた技術者のみご使用ください。

⚠WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠AVERTISSEMENT

Ce manual est destiné uniquement aux personnes compétentes en charge de l’entretien. Afin de réduire les risques de décharge électrique, d’incendie ou de blessure n’effectuer que les réparations indiquées dans le mode d’emploi à moins d’être qualifié pour en effectuer d’autres. Pour toute réparation faire appel à une personne compétente uniquement.

Attention-when the product is installed in Rack:

1. **Prevention against overloading of branch circuit**
   When this product is installed in a rack and is supplied power from an outlet on the rack, please make sure that the rack does not overload the supply circuit.

2. **Providing protective earth**
   When this product is installed in a rack and is supplied power from an outlet on the rack, please confirm that the outlet is provided with a suitable protective earth connection.

3. **Internal air ambient temperature of the rack**
   When this product is installed in a rack, please make sure that the internal air ambient temperature of the rack is within the specified limit of this product.

4. **Prevention against achieving hazardous condition due to uneven mechanical loading**
   When this product is installed in a rack, please make sure that the rack does not achieve hazardous condition due to uneven mechanical loading.

CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer's instructions.

Vorsicht!

Explosionsgefahr bei unsachgemäßem Austausch der Batterie.

Ersatz nur durch denselben oder einen vom Hersteller empfohlenen ähnlichen Typ.
Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

ATTENTION

Il y a danger d'explosion s'il y a remplacement incorrect de la batterie.

Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur.
Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

ADVARSEL!

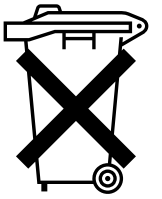
Lithiumbatteri-Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

Voor de klanten in Nederland

Dit apparaat bevat een $(CF)_n$-Li batterij voor memory back-up.

Raadpleeg uw leverancier over de verwijdering van de batterij op het moment dat u het apparaat bij einde levensduur afdankt.

Gooi de batterij niet weg. maar lever hem in als KCA.



Bij dit produkt zijn batterijen geleverd. Wanneer deze leeg zijn, moet u ze niet weggooien maar inleveren als KCA.

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Manual Structure

Purpose of this manual

This manual is the installation manual of digital videocassette recorder MSW-A2000/A2000P.
This manual is intended for use by trained system and service engineers, and provides the information that is required to install (environment, connection information, initial setting, etc.) and the setting check sheet.

Related manuals

Besides this “installation manual”, the following manuals are available for digital videocassette recorder MSW-A2000/A2000P.

- **Operation Manual (Supplied with the MSW-A2000/A2000P.)**
  This manual is necessary for application and operation (and installation) of the MSW.

- **Maintenance Manual (Available on request)**
  Volume-1 : Service Instruction
  Volume-2 : Parts List
  Volume-3 : Diagrams

  These manuals describe the maintenace and service information (service overview, adjustments, board layouts, schematic diagrams, detailed parts list, etc.) for this unit. If these manuals are required, please contact your local Sony Sales Office/Service Center.

- **Protocol Manual of Remote (9-pin) Connector (Available on request)**
  This manual explains the protocol for controlling the VTR via the RS-422A (9-pin serial remote). If this manual is required, please contact your local Sony Sales Office/Service Center.

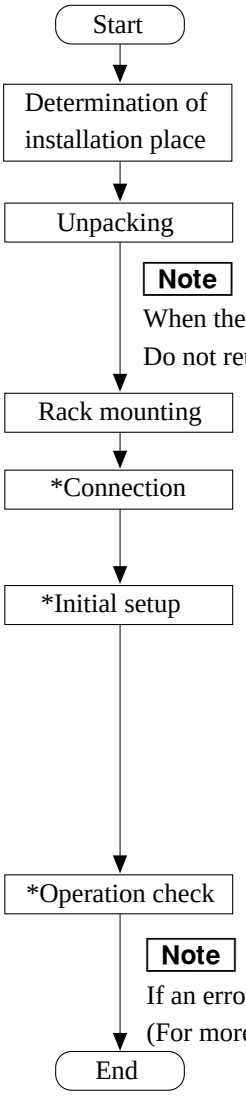
- **Interface Manual of Parallel I/O (50-pin) Connector (Available on request)**
  This manual explains the protocol for controlling the VTR via the parallel (50-pin). If this manual is required, please contact your local Sony Sales Office/Service Center.

- **“Semiconductor Pin Assignments” CD-ROM (Available on request)**
  This “Semiconductor Pin Assignments” CD-ROM allows you to search for semiconductors used in the MSW.
  Semiconductors that cannot be searched for on this CD-ROM are listed in the maintenance manual (volume-3) for the corresponding unit. The maintenance manual (volume-3) contains a complete list of all semiconductors and their ID Nos., and thus should be used together with the CD-ROM.
  Part number: 9-968-546-XX

Section 1
Installation

1-1. Installation Procedure

Installation procedure of this unit is shown on the following flowchart.
Refer to each section about detail of each flow.
The operation manual is also required to do ∗-marked flow.



1-3. Operating Conditions
1-4. Power Supply
1-5. Installation Space

Note

When the unit is transported, it is required to pack the unit into the specified new packing materials.
Do not reuse the packing materials.

1-6. Rack Mounting

1-7. Matching Connectors and Cables
1-8. Signal Inputs and Outputs

1-9. Switch Settings on Connector Panel
1-10. Analog Audio-related Switch Settings
1-11. Displaying Setup Extended Menu
1-12. Removing/Reattaching Lower Control Panel Unit
1-13. Switching Search Dial Mode
1-14. Reference System
1-15. Settings and Adjustment when External Equipment is Connected

Note

If an error message appears on the time data display area, refer to the operation manual.
(For more details, refer to the maintenance manual volume-1.)

1-2. Supplied Accessories

Screws for rack mounting (PSW 4 × 16) 4
Operation manual 1
Installation manual 1

1-3. Operating Conditions

CAUTION

Good air circulation is essential to prevent internal heat build-up. Place the unit in location with sufficient air circulation.

Do not block the ventilation holes of the cabinet and the front and rear panels.

Operating temperature: 5 ˚C to 40 ˚C
Operating humidity: 25 % to 80 %
(Condensation not allowed)
Storage temperature: −20 ˚C to 60 ˚C
Locations to avoid:

- Areas where the unit will be exposed to direct sunlight of any other strong lights.
- Areas near heat sources.
- Dusty areas or areas subject to vibration.
- Areas with strong magnetic field.
- Areas with much electrical noise.
- Areas with much static electricity.
- Areas that is impossible to find a specified room for installation.
  (Refer to “1-5. Installation Space” page 1-3.)
- Areas windtight.

Tilt allowance: Within 30˚
Do not slant the front and rear of the unit more than 30˚.

CAUTION

Fix the unit securely to avoid drop when the unit is operated at not-horizontal place.

1-4. Power Supply

1-4-1. Voltage and Power Requirements

WARNING

Be sure to operate the unit within the range of following power voltage.

Power voltage: AC 100 to 240 V ± 10 %
Power frequency: 50 Hz or 60 Hz
Power consumption: 2A (200 W)
(Without the optional kit.)
Rush current: Power voltage 100 V IN; 10 A
Power voltage 240 V IN; 20 A

This unit’s power line has a switching regulator.

Note

AC power supply is required a capacity which is commensurate with rush current.

If the capacity of the AC power supply is not enough, the breaker of AC power of a supply side may operate or this unit may not operate normally.

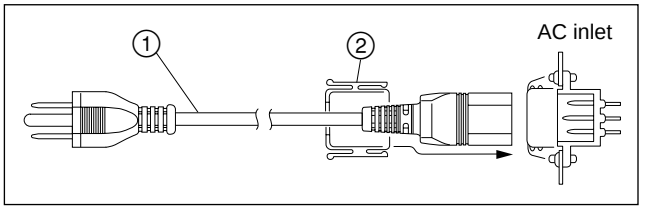
1-4-2. Power Cord

WARNING

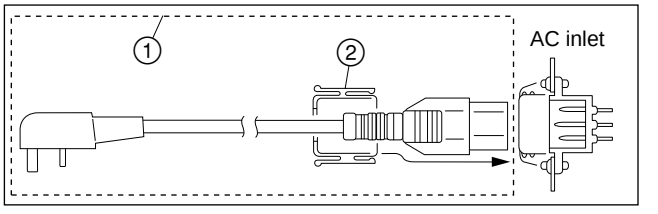
Use the specified power cord only when connecting the AC power.

Never use a damaged power cord.

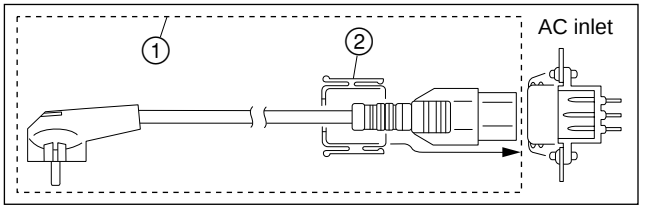
For customers in the U.S.A. and Canada:
① Power cord (approx. 2.4 m) ⚠1-557-377-11
② Plug holder (Brown) 3-613-640-01
Please contact your local Sony Sales Office/Service Center.



For customers in the United Kingdom:
① Power cord DK-2401(UK) (approx. 2.4 m)
② Plug holder (Brown) 3-613-640-01
Plug holder is included in DK-2401(UK).



For customers in Europe except the United Kingdom:
① Power cord DK-2401(AE) (approx. 2.4 m)
② Plug holder (Brown) 3-613-640-01
Plug holder is included in DK-2401(AE).



If the unit is used in the area except above, please contact your local Sony Sales Office/Service Center.

1-5. Installation Space

When installing, the installation space must be secured in consideration of the ventilation and service operation.

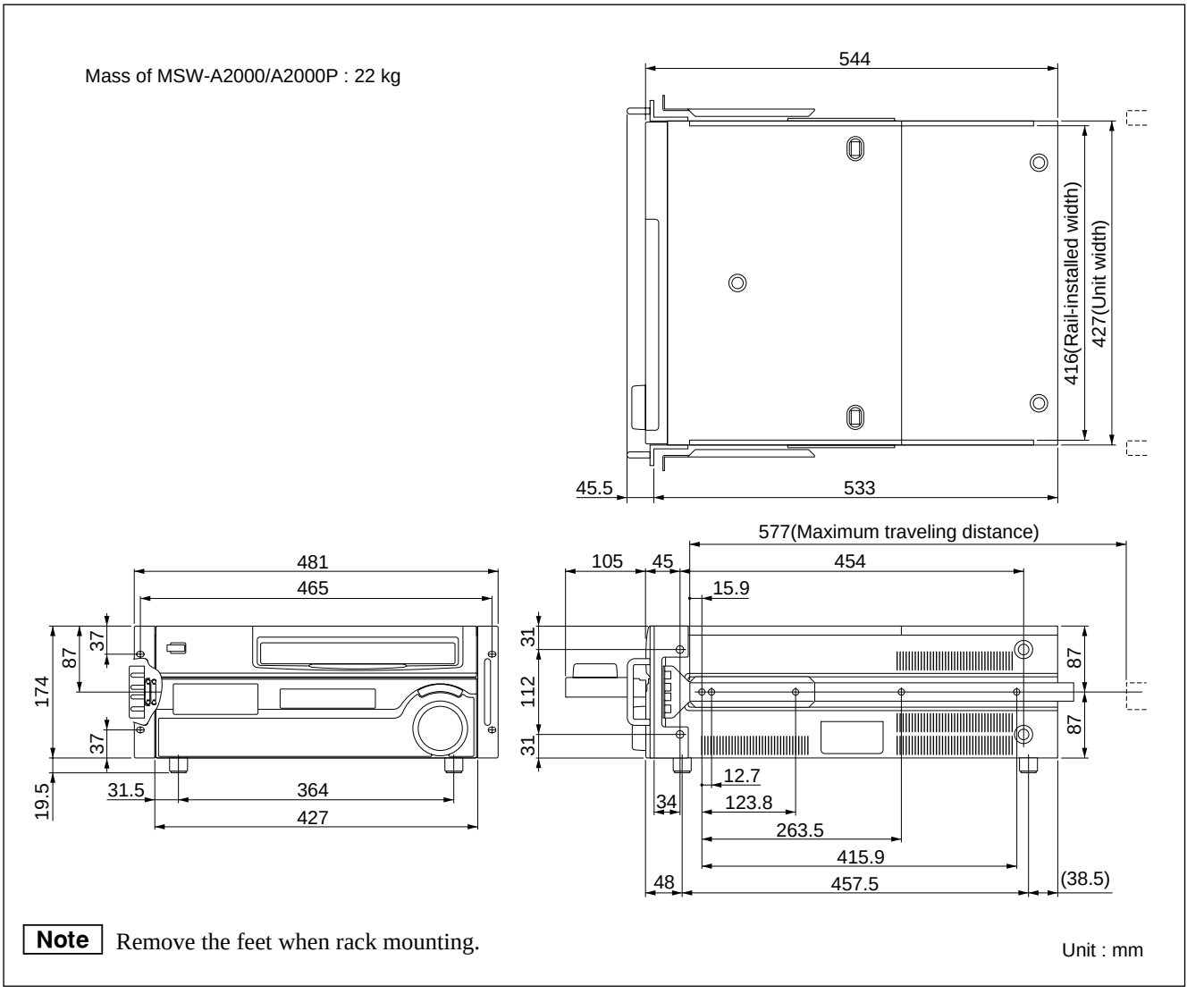
- Do not block the ventilation slots at the left side and right side panels, and vents of the fans.
- Leave a space around the unit for ventilation.
- Leave more than 40 centimeters of space in the rear of the unit to secure the operation area.

When the unit is installed on the desk or the like, leave at least four centimeters of space in the left and right sides. Leaving 40 centimeters or more of space above the unit is recommended for service operation.

Moreover, an air flow that is effective in cooling the unit is essential. If the ventilation is not enough, the unit may be damaged because of an increase of the internal temperature.

Note

This unit is air-cooled by the five fans. The operation with the upper lid is removed affects the air cooling by the fans. Complete the work in a short time as possible when operating the unit for inspection with the upper lid removed. If it takes a long time, blow to the unit by an electric fan to cool the unit.



Dimensions when Rack-Mounting

Note

The MSW-A2000/A2000P allows the operation with the detached lower control panel unit.
For details, refer to Section 1-12.

1-6. Rack Mounting

Explains how to mount this unit into a 19-inch standard rack.
Be sure to mount this unit into a rack accurately following the procedure and notes mentioned below.

CAUTION

- Use the specified rack mount rail.
  The use of other rail of low strength may drop the unit and cause the risk of injury.
- To prevent toppling over the rack, fix it on the horizontal and firm floor securely with bolts, etc.
- Mount the unit into a rack with a steady posture.

Notes

- When other equipment with built-in hard disk drive is already mounted in the same rack for mounting this unit, turn off the power of the equipment before mounting this unit.
- Connect long enough cables on the connector panel, considering that the unit is pulled out from the rack.
- Do not operate this unit without the upper lid and bottom plate except when servicing it.
- Adjust the temperature inside the rack within the range of the unit's operating temperature.
  (Refer to Section 1-3.)

Specified Rack Mount Kit

RMM-130 (Optional accessory)

Note

When mounting this unit into Sony LMS (Library Management System) VTR console, it is necessary to modify the VTR console.

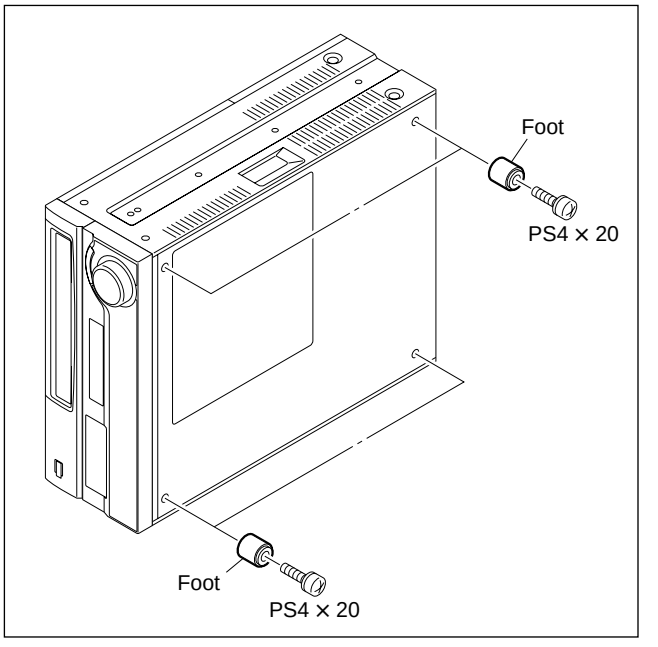
Parts Packed in RMM-130

- Slide rails 2
- Rack angles (handles) 2
- Rail brackets 4
- Plate nuts (large) 4
- Plate nuts (small) 4
- Screws (PSW4 × 16) 4
- Screws (B4 × 8) 8
- Hexagon socket head cap screws 8
- Flat washers 8
- Screws (RK5 × 14) 2
- Ornamental washers 2
- L-shaped hexagon wrench 1

Rack Mounting Procedure

• Removing the feet

1. Set the unit its side panel down.
2. Unscrew the four screws to remove the feet from the bottom plate of the unit.
3. Set the unit in a horizontal position.

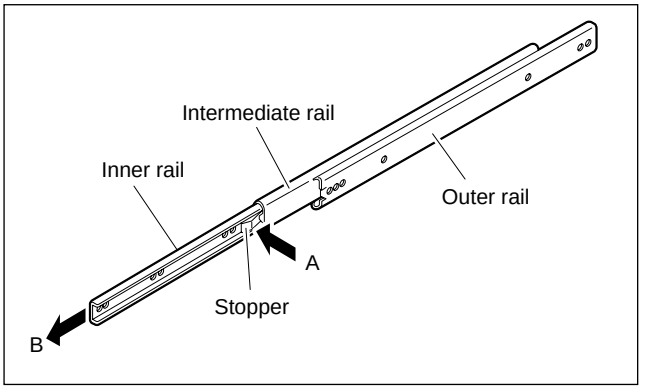


Note

Keep these screws and the feet.
When operating the unit after demounting it from the rack, be sure to reattach the feet.
Tightening torque: 98×10^{-2} N • m {10 kgf • cm}

• Attaching the inner rails

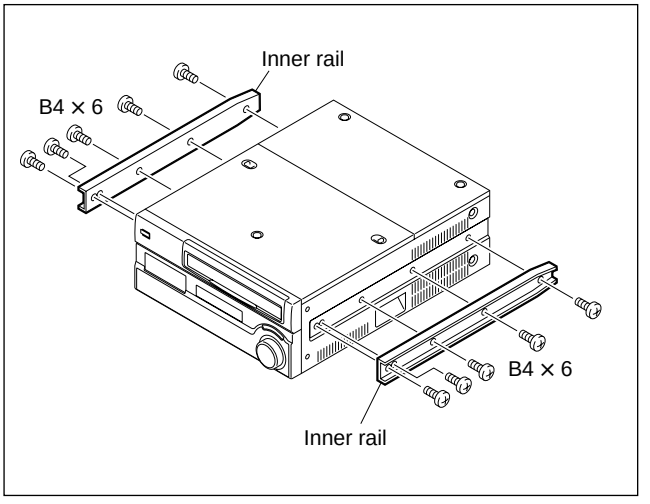
4. Pull out the inner rails from the two intermediate rails.
5. While pressing the stopper of the inner rail in the direction of the arrow A in the figure, pull the inner rail out in the direction of the arrow B.



6. Remove the ten screws from both sides (left and right) of the unit as shown in the figure below.
7. Attach the two inner rails to both sides (left and right) of unit with the removed screws in the step 6.
   Tightening torque: 120 × 10^{-2} N • m {12.2 kgf • cm}

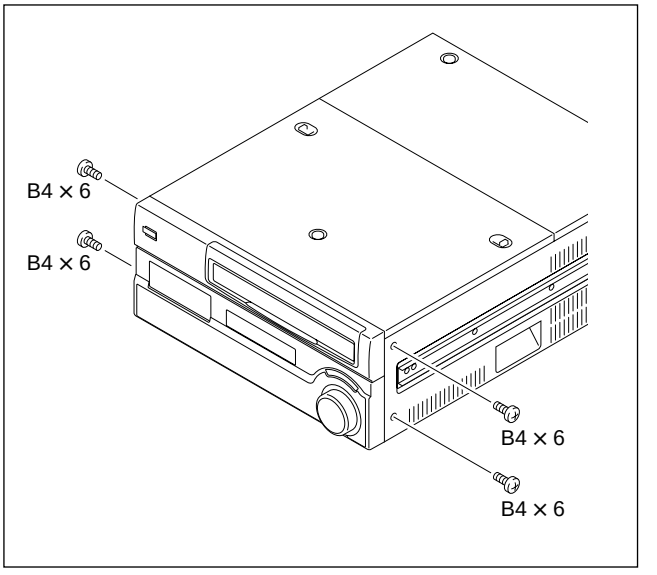
   Note

   Be sure to use the (B4 × 6) screws when attaching the inner rail. The use other-sized screws may cause a malfunction.



• Attaching the rack angles (handles)

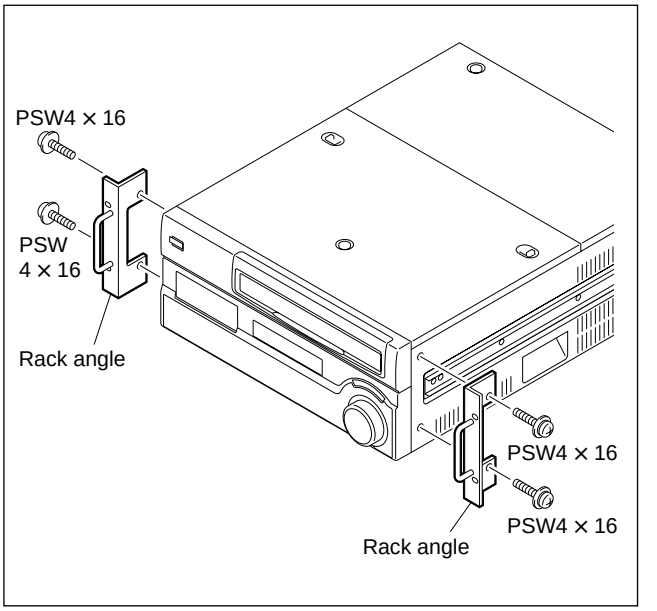
8. Remove the four screws from both sides (left and right) of the unit.



Note

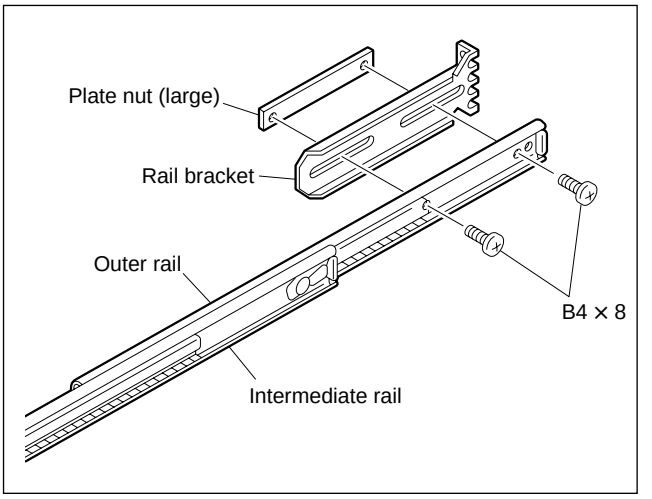
Keep these screws (B4 × 6).
Be sure to use these screws when directly fixing the side panels without the rack angles.
The use of longer screws such as the screws (PSW 4 × 16) for fixing the rack angles will cause a malfunction of the unit.

9. Attach the two rack angles to both sides (left and right) of the unit with the supplied four screws (PSW4 × 16).
   Tightening torque: 120 × 10^{-2} N • m {12.2 kgf • cm}

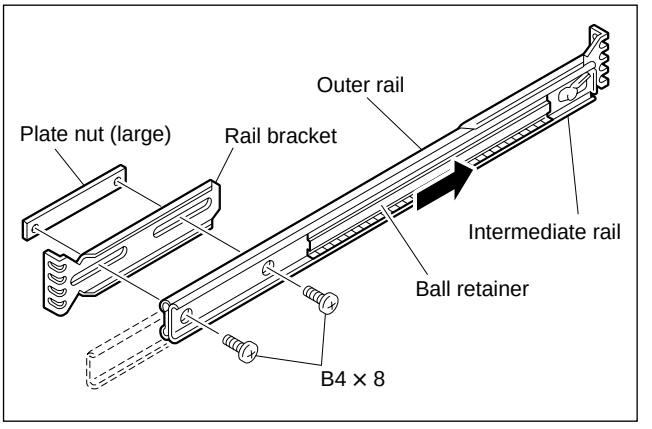


• Loosely attaching the rail brackets

10. Slide the intermediate rail as shown in the figure, and then loosely attach the rail bracket to the outer rail with a plate nut (large) and the two screws.

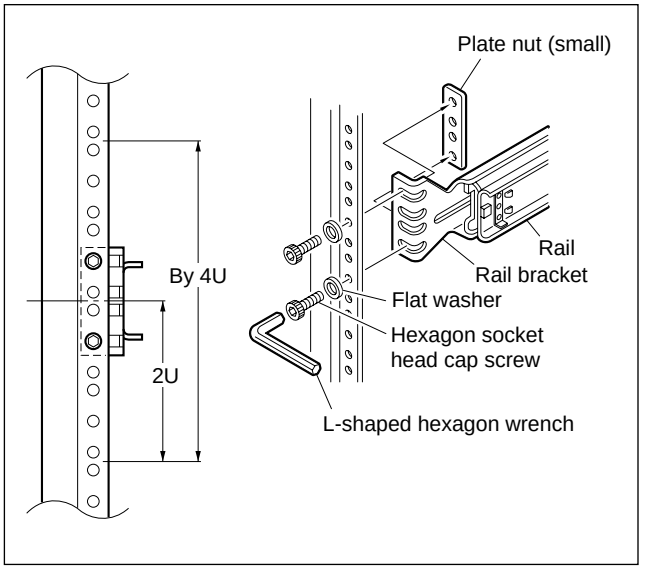


11. Slide the ball retainer in the direction of the arrow, and then loosely attach the rail bracket to the outer rail with a plate nut (large) and the two screws.

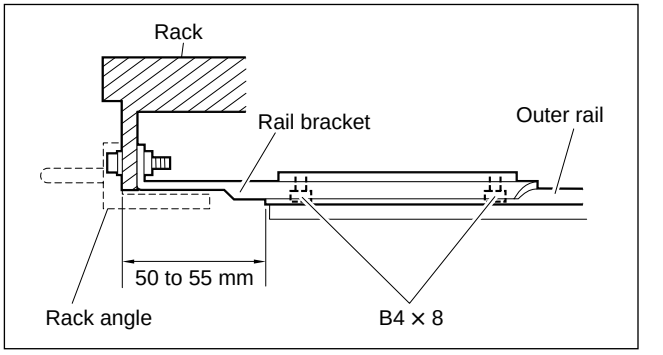


• Attaching the outer rails

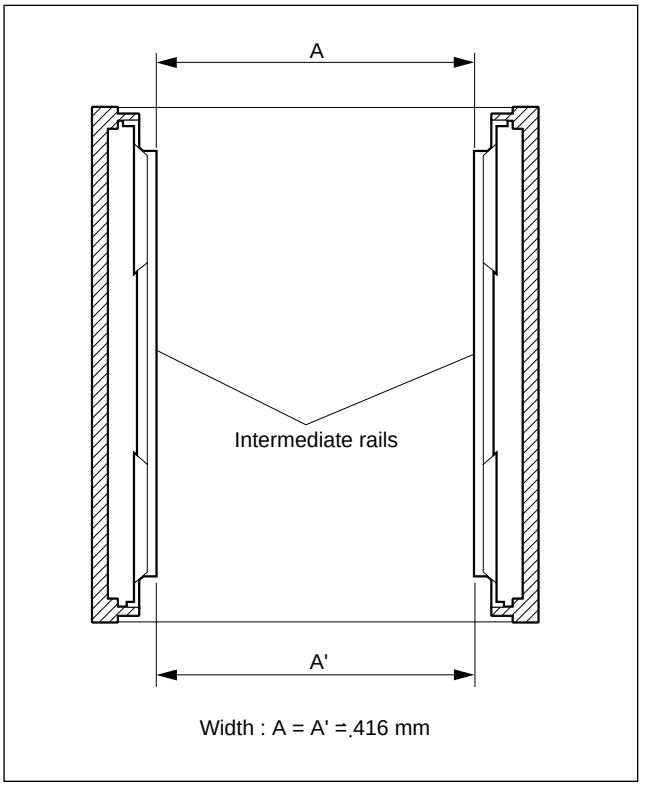
12. Loosely attach the two outer rails to the middle of the 4U space in the rack for mounting this unit, with the eight hexagon socket head cap screws, eight flat washers, and four plate nuts (small).



13. As shown in the following figure, adjust each front-side position of the outer rails on both sides (left and right) so that the distance from the surface of the rack to the tip of the rail becomes within the range of 50 to 55 millimeters.
14. Fully tighten the eight screws (B4 × 8) fixing the four rail brackets.
    Tightening torque: 120×10^{-2} N • m {12.2 kgf • cm}



15. Check that the two intermediate rails attached to the rack are parallel.



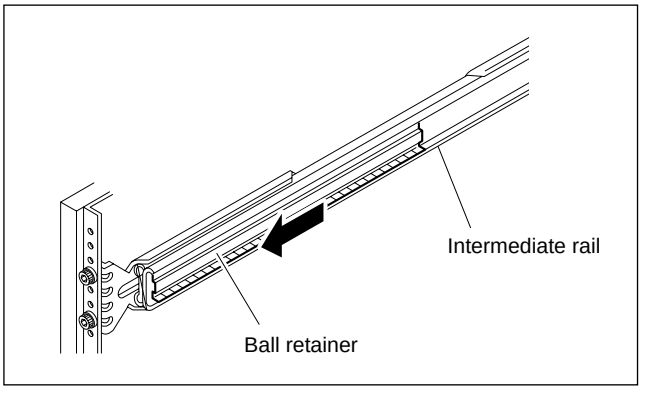
16. To fix the two outer rails to the rack, fully tighten the eight loosely fitted hexagon socket head cap screws in step 12 using the L-shaped hexagon wrench.

• Mounting in rack

CAUTION

Be sure to carry the unit by the two persons or more.

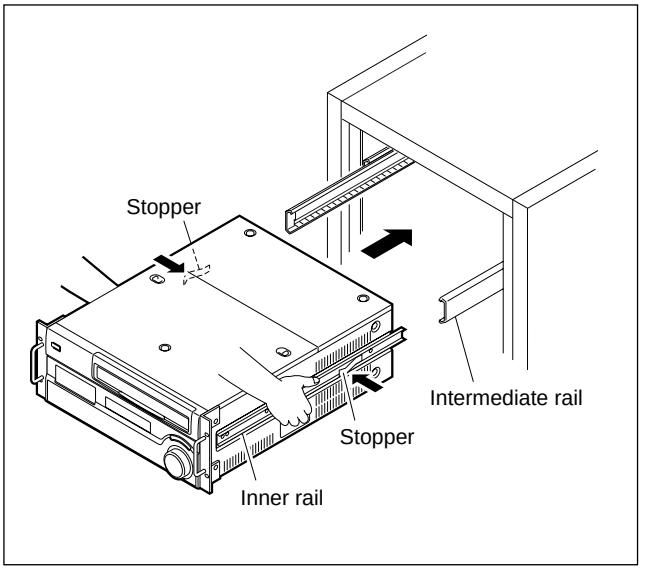
17. Slide each ball retainer of intermediate rails on both sides (left and right) in the direction of the arrow.



18. Pull equal length of each rail on both sides out.
19. Lift the unit holding the gripes on both sides, slowly insert the inner rails into the intermediate rails.
20. While pressing each stopper of inner rails on both sides, slowly push the unit into the rack.

Note

Be careful not to catch your finger or hand in rack mount rail.



21. Slide the unit in and out from the rack about three times and check that the slide rails move smoothly.
    If they are not smoothly, demount the unit and go back to “Attaching the outer rails” (step 12).

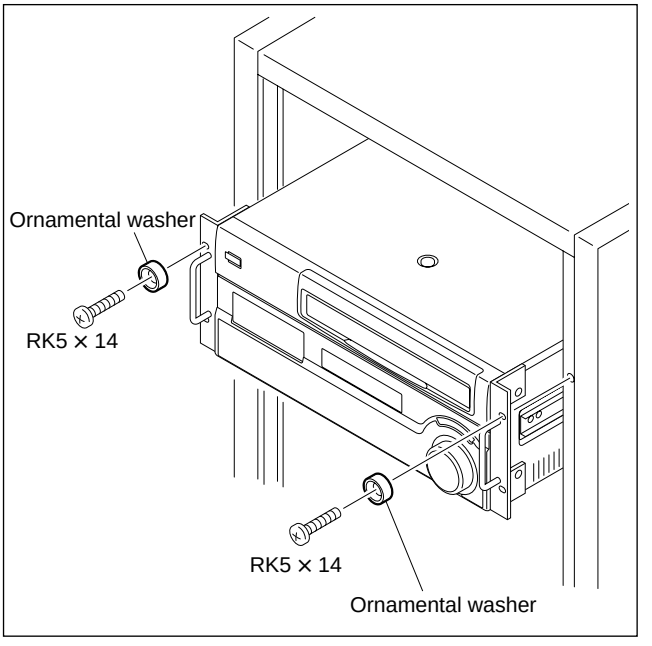
    CAUTION

    When demounting the unit, carry it by the two persons or more.

    Note

    This unit does not have the feet at this operating.
    Put down the unit on the floor or other, being careful not to damage the unit.

22. Secure the unit to the rack with the two screws and two ornamental washers.
    Tightening torque: 120×10^{-2} N • m {12.2 kgf • cm}



1-7. Matching Connectors and Cables

When external cables are connected to the connector of this unit, the hardware listed below (or equivalents) must be used.

Panel indication	Matching connector (cable)	Sony part No.	Remarks
AUDIO INPUT	XLR 3P, MALE	1-508-084-00	
AUDIO OUTPUT	XLR 3P, FEMALE	1-508-083-00	
MONITOR OUTPUT	XLR 3P, FEMALE	1-508-083-00	
TIME CODE IN	XLR 3P, MALE	1-508-084-00	
OUT	XLR 3P, FEMALE	1-508-083-00	
VIDEO INPUT	BNC 75Ω, MALE	1-569-370-12	
VIDEO OUTPUT	BNC 75Ω, MALE	1-569-370-12	
AUDIO INPUT (AES/EBU)	BNC 75Ω, MALE *1	1-569-370-12	
AUDIO OUTPUT (AES/EBU)	BNC 75Ω, MALE *1	1-569-370-12	
REMOTE 2 PARALLEL I/O (50P)	D-SUB 50P, MALE and JUNCTION SHELL 50P	1-565-516-11 1-563-379-11	
REMOTE 1-IN (9P)	9P remote control cable (RCC-G series) or D-SUB 9P, MALE and JUNCTION SHEEL 9P	 – 1-560-651-00 1-561-749-00	
REMOTE 1-OUT (9P)	9P remote control cable (RCC-G series) or D-SUB 9P, MALE and JUNCTION SHEEL 9P	 – 1-560-651-00 1-561-749-00	
RS-232C	D-SUB 9P, FEMALE	1-563-815-21	
CONTROL PANEL	10P, MALE (connecting cable)	1-792-418-11	
VIDEO CONTROL	D-SUB 15P, FEMALE and JUNCTION SHELL 15P	1-561-610-21 1-561-929-00	
(OPTION)	Specified by optional kit or D-SUB 9P, MALE and JUNCTION SHEEL 9P	– 1-560-651-00 1-561-749-00	
SDI	BNC 75Ω, MALE *2	1-569-370-12	
SDTI	BNC 75Ω, MALE *2	1-569-370-12	
PHONE *3	JM-60 stereo phone plug	–	

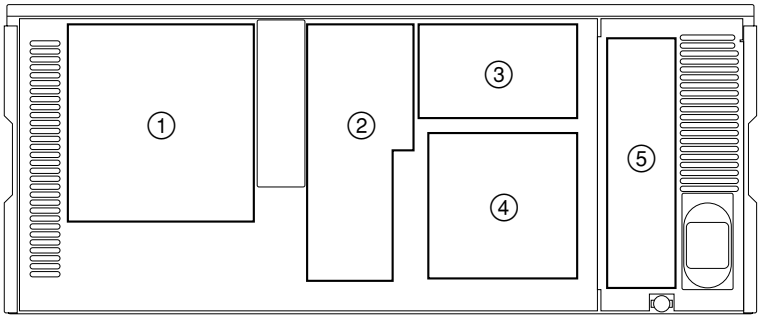
∗1: Coaxial cable length : max. 600 meters (Reference value based on MSW series)
It is recommended to connect the BELDEN8281 cable or equivalent to this connector.

∗2: Coaxial cable length : max. 200 meters (Reference value based on MSW series)
It is recommended to connect the BELDEN8281 cable or equivalent to this connector.

∗3: It is used on the front (upper control panel).

1-8. Signal Inputs and Outputs

〈**Reduced drawing of rear panel**〉



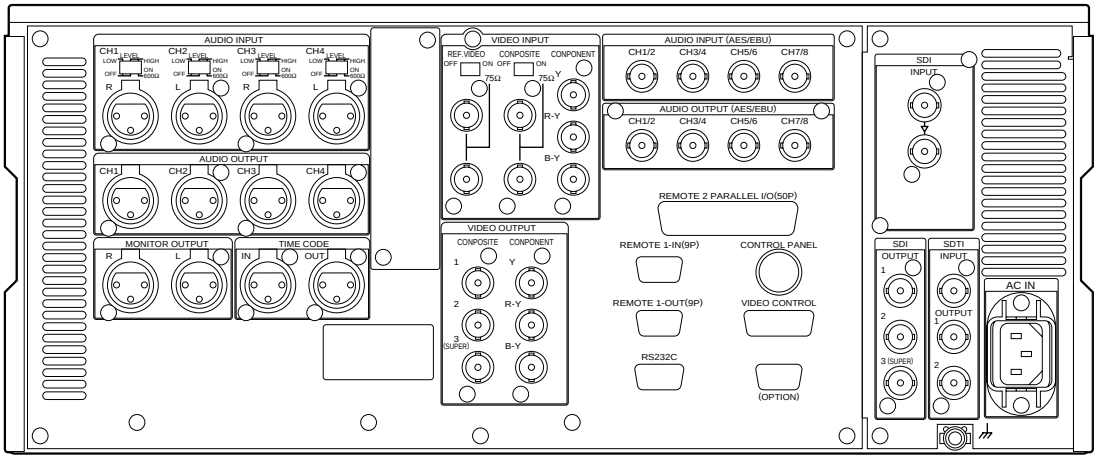
Input connectors

① AUDIO INPUT	XLR 3-pin × 4 (1 set : CH1, CH2, CH3, and CH4) Analog audio 4 channels LOW OFF : –60 dBu, high impedance, balanced HIGH OFF : +4 dBu (Standard), high impedance, balanced HIGH ON : +4 dBm (Standard), 600 Ω termination, balanced
① TIME CODE IN	XLR 3-pin × 1 Time code 0.5 to 18 V p-p, 10 kΩ, balanced
② VIDEO INPUT, REF.VIDEO	BNC × 2 in loop through connection Outside reference video signal (Black burst or composite sync) 0.3 V p-p, 75 Ω, sync negative
② VIDEO INPUT, COMPOSITE	BNC × 2 in loop through connection Analog composite video 1.0 V p-p, 75 Ω, sync negative
② VIDEO INPUT, COMPONENT	BNC × 3 (1 set : Y, R-Y, and B-Y) Analog component video Y : 1.0 V p-p, 75 Ω, sync negative R-Y/B-Y : 0.7 V p-p, 75 Ω
③ AUDIO INPUT (AES/EBU)	BNC × 4 (1 set : CH1/2, CH3/4, CH5/6, and CH7/8) Digital audio 8 channels AES/EBU format, 2 channel mode, 1.0 V p-p, 75 Ω
⑤ SDI INPUT	BNC × 1 (active through out × 1) Serial digital interface (270 Mbit/s) in conformity to SMPTE 259M & ITU-R BT.656
⑤ SDTI INPUT	BNC × 1 Serial data transport interface (270 Mbit/s) in conformity to SMPTE 305M (SDTI) and SMPTE 322M (SDTI-CP)

Remote connectors

④ REMOTE 2 PARALLEL I/O (50P)	D-SUB 50P connector (Refer to Optional “Interface manual” for details.)
④ REMOTE1-IN (9P)	D-SUB 9P connector (RS-422A interface) Remote control
④ REMOTE1-OUT (9P)	D-SUB 9P connector (RS-422A interface) Remote control
④ RS-232C	D-SUB 9P connector (RS-232C interface) for ISR (Interactive Status Reporting)
④ CONTROL PANEL	10P connector for an outside control panel connection only
④ VIDEO CONTROL	D-SUB 15P connector for a TBC remote controller (BVR-50) connection
④ (OPTION)	D-SUB 9P connector for an optional kit

〈 **Rear panel** 〉

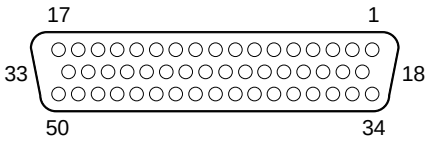


Output connectors

① AUDIO OUTPUT	XLR 3-pin × 4 (1 set : CH1, CH2, CH3, and CH4) Analog audio 4 channels +4 dBm (Standard) (600 Ω load), low impedance, balanced
① TIME CODE OUT	XLR 3-pin × 1 Time code 2.2 V p-p, low impedance, balanced
① MONITOR OUTPUT	XLR 3-pin × 2 (1 set : R and L) Analog audio +4 dBm (Standard) (600 Ω load), low impedance, balanced
② VIDEO OUTPUT, COMPOSITE	BNC × 3 (including 1 for character superimpose) Analog composite video 1.0 V p-p, 75 Ω, sync negative
② VIDEO OUTPUT, COMPONENT	BNC × 3 (1 set : Y, R-Y, and B-Y) Analog component video Y : 1.0 V p-p, 75 Ω, sync negative R-Y/B-Y : 0.7 V p-p, 75 Ω
③ AUDIO OUTPUT (AES/EBU)	BNC × 4 (1 set : CH1/2, CH3/4, CH5/6, and CH7/8) Digital audio 8 channels AES/EBU format, 2 channel mode, 1.0 V p-p, 75 Ω
⑤ SDI OUTPUT	BNC × 3 (including 1 for character superimpose) Serial digital interface (270 Mbit/s) in conformity to SMPTE 259M & ITU-R BT.656
⑤ SDTI OUTPUT	BNC × 2 Serial data transport interface (270 Mbit/s) in conformity to SMPTE 305M (SDTI) and SMPTE 322M (SDTI-CP)
PHONE (Upper control panel)	JM-60 stereo phone jack Analog audio up to –12 dBu (8 Ω load), unbalanced

REMOTE 2 PARALLEL I/O: 50-pin (female)

〈External view〉



Pin No.	I/O *1	Setting change *2	Signal	Description
1	IN	○	FF	CLOSURE SW (FF)
2	OUT	×	REC SW	PANEL REC SW OUT
3	OUT	×	PLAY SW	PANEL PLAY SW OUT
4	OUT	×	STOP SW	PANEL STOP SW OUT
5	OUT	×	ENTRY SW	PANEL ENTRY SW OUT
6	OUT	×	REF SYSTEM ALARM	Non-REFERENCE
7	OUT	×	CF LOCK	COLOR FRAME LOCK STATUS
8	OUT	×	DRUM LOCK	LOCK STATUS OF DRUM SERVO
9	OUT	×	CAP LOCK	LOCK STATUS OF CAPSTAN SERVO
10	OUT	○	CUE PRESET	EDIT PRESET STATUS of the CUE Channel
11	OUT	○	TC PRESET	EDIT PRESET STATUS of the TC Channel
12	OUT	○	OXIDE/METAL	OXIDE/METAL TAPE STATUS
13	OUT	○	TAPE THICKNESS	TAPE THICKNESS STATUS
14	OUT	×	SPARE	SPARE
15	OUT	×	SPARE	SPARE
16	——	——	+12V	——
17	——	——	GND	SIGNAL GND
18	IN	○	PREROLL	CLOSURE SW (PREROLL)
19	IN	○	STBY ON	CLOSURE SW (STANDBY ON)
20	IN	○	REW	CLOSURE SW (REW)
21	IN	○	ENTRY	CLOSURE SW (ENTRY IN)
22	IN	○	STBY OFF	CLOSURE SW (STANDBY OFF)
23	IN	○	EJECT	CLOSURE SW (EJECT)
24	OUT	×	REC	REC STATUS
25	OUT	×	CH CONDITION RED	CHANNEL CONDITION RED STATUS
26	OUT	○	ASSEMBLE PRESET	ASSEMBLE PRESET STATUS
27	OUT	○	EDIT OUT	EDIT STATUS
28	OUT	○	EJECT OUT	EJECT STATUS
29	OUT	○	ANALOG/DIGITAL	ANALOG/DIGITAL STATUS
30	OUT	○	REEL HUB	REEL HUB STATUS
31	OUT	×	REM2 SETTING DATA RESET	REMOTE2 SETTING DATA RESET STATUS
32	OUT	×	ALL REC INHIBIT	ALL REC INHIBIT STATUS
33	——	——	GND	
34	IN	○	PLAY	CLOSURE SW (PLAY)
35	IN	○	STOP	CLOSURE SW (STOP)

(Continue)

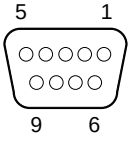
(Continued)

Pin No.	I/O *1	Setting change *2	Signal	Description
36	IN	○	REC	CLOSURE SW (REC)
37	OUT	×	REV LAMP	REV LAMP STATUS
38	OUT	○	DA2 PRESET	DA2 EDIT PRESET STATUS
39	OUT	○	DA1 PRESET	DA1 EDIT PRESET STATUS
40	OUT	×	FWD LAMP	FWD LAMP STATUS
41	OUT	○	DA4 PRESET	DA4 EDIT PRESET STATUS
42	OUT	○	DA3 PRESET	DA3 EDIT PRESET STATUS
43	OUT	×	STOP	STOP STATUS
44	OUT	○	VIDEO PRESET	VIDEO EDIT PRESET STATUS
45	OUT	○	INSERT PRESET	INSERT EDIT PRESET STATUS
46	OUT	×	STBY ON	STANDBY ON STATUS
47	OUT	×	PLAY	PLAY STATUS
48	OUT	×	REMOTE	REMOTE STATUS
49	OUT	×	ALARM	SYSTEM ALARM STATUS
50	OUT	○	PREROLL	PREROLL STATUS

∗1: Input ; 47 kΩ pull up to +5 V (close/open)
Output ; 10 kΩ pull up to +5 V (0 V or open)
∗2: The pins described as ○ mark are possible to change the setting.
Refer to the optional interface manual for changing the setting.

REMOTE1-IN: 9-pin (female)
REMOTE1-OUT: 9-pin (female)

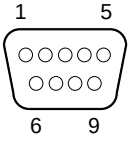
〈**External view**〉



Pin No.	Signal
1	GND
2	RM TX(–)
3	RM RX(+)
4	GND
5	PRIORITY
6	GND
7	RM TX(+)
8	RM RX(–)
9	GND

RS-232C: 9-pin (male)

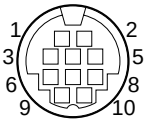
〈**External view**〉



Pin No.	Signal
1	DCD ; Data Carrier Detect (Input)
2	RXD ; Received Data (Input)
3	TXD ; Transmitted Data (Output)
4	DTR ; Data Terminal Ready (Output)
5	SG ; Signal Ground
6	DSR ; Data Set Ready (Input)
7	RTS ; Request to Send (Output)
8	CTS ; Clear to Send (Input)
9	NC

CONTROL PANEL: 10-pin (female)

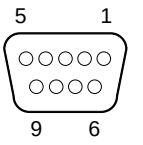
〈External view〉



Pin No.	Signal	Terminal voltage (V)
1	+21 V	+21 V
2	+21 V	+21 V
3	KEY TX (+) (Output)	RS422
4	FRONT/REAR	+5: FRONT 0: REAR
5	KEY TX (–) (Output)	RS422
6	KEY RX (+) (Input)	RS422
7	GND	
8	KEY RX (–) (INPUT)	RS422
9	GND	——
10	GND	——

(OPTION): 9-pin (female)

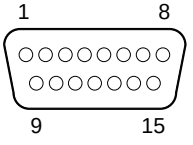
〈External view〉



Pin No.	Signal
1	GND
2	RM TX (–)
3	RM RX (+)
4	GND
5	——
6	GND
7	RM TX (+)
8	RM RX (–)
9	GND

VIDEO CONTROL: 15-pin (male)

〈External view〉



Pin No.	Signal	Terminal voltage (V)
1	SYNC CONT (Input)	–5 to +5
2	HUE CONT (Input)	–5 to +5
3	SC CONT (Input)	–5 to +5
4	VIDEO LEVEL CONT (Input)	–5 to +5
5	SETUP CONT (Input)	–5 to +5
6	CHROMA LEVEL CONT (Input)	–5 to +5
7	REG –12V (Output)	–12
8	GND	——
9 to 12	NC	——
13	Y/C DELAY CONT (Input)	–5 to +5
14	NC	——
15	REG +12V (Output)	+12

1-9. Switch Settings on Connector Panel

When the unit is installed, be sure to perform the following setup.
Refer to the operation manual “Section 2 Location and Function of Parts” for setup.

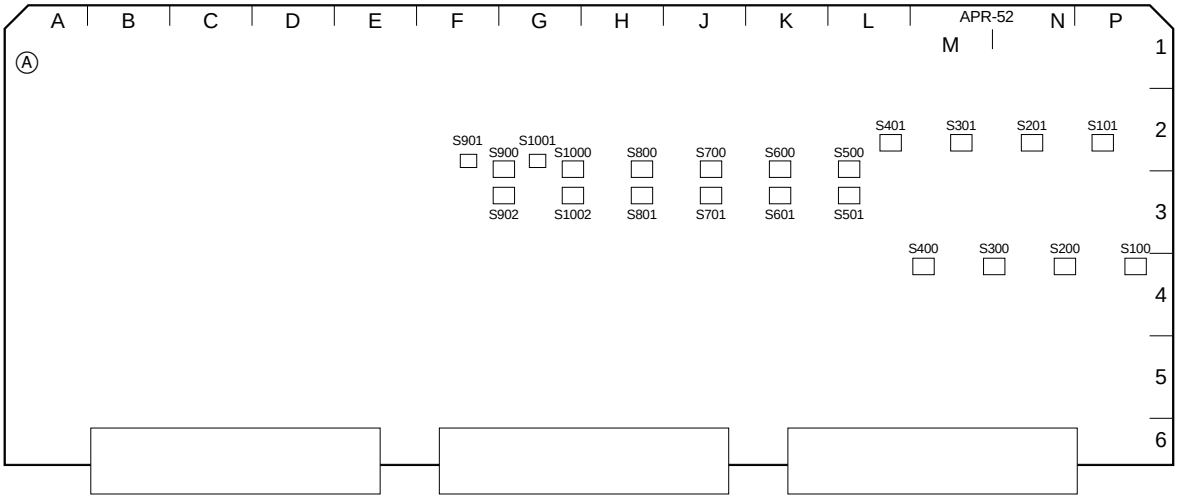
- Analog audio input level/600 Ω termination switches
- 75 Ω termination switch of reference video input
- 75 Ω termination switch of composite video input

1-10. Analog Audio-related Switch Settings

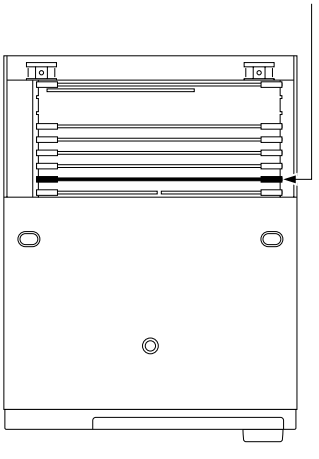
If necessary, perform the following audio-related settings using the switches on the APR-52 board.

- Audio input level *1
- Audio input headroom *2
- Audio output level *1
- Audio output headroom *2
- Monitor output level *1
- Monitor output headroom *2
- Monitor output level, fixed/variable selection

*1: Select the level for each channel from +4, 0, −3, −20 dBm. (Factory settings: +4 dBm for each channel)
*2: Select the headroom for each channel from 20, 18, 16 dBm. (Factory settings: 20 dBm for each channel)



APR-52 Board (Side A)

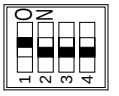
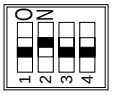
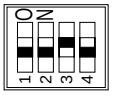
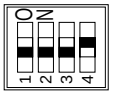


< Top View >

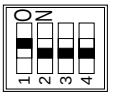
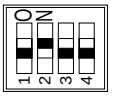
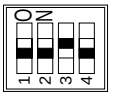
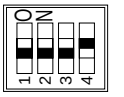
Note

Refer to Section 1-16 for removing and reattaching the plug-in boards.

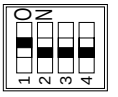
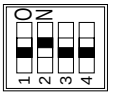
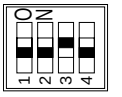
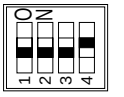
Audio input level settings

Channel	Ref. No.	Input level and Switches state (: Knob position)			
CH1	S100				
CH2	S200				
CH3	S300				
CH4	S400	+4 dBm/600 Ω (Factory setting)	0 dBm/600 Ω	–3 dBm/600 Ω	–20 dBm/600 Ω

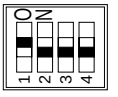
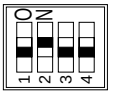
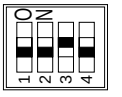
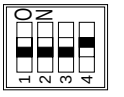
Audio input headroom settings

Channel	Ref. No.	Input headroom and Switches state (: Knob position)			
CH1	S101				
CH2	S201				
CH3	S301				
CH4	S401	20 dB (Factory setting)	18 dB	16 dB	12 dB

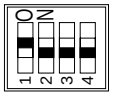
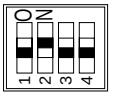
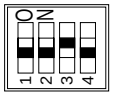
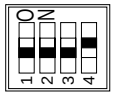
Audio output level settings

Channel	Ref. No.	Output level and Switches state (: Knob position)			
CH1	S501				
CH2	S601				
CH3	S701				
CH4	S801	+4 dBm/600 Ω (Factory setting)	0 dBm/600 Ω	–3 dBm/600 Ω	–20 dBm/600 Ω

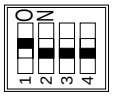
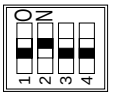
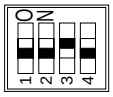
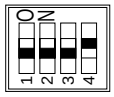
Audio output headroom settings

Channel	Ref. No.	Output headroom and Switches state (: Knob position)			
CH1	S500				
CH2	S600				
CH3	S700				
CH4	S800	20 dB (Factory setting)	18 dB	16 dB	12 dB

Monitor output level settings

Channel	Ref. No.	Output level and Switches state (: Knob position)			
L	S902				
R	S1002	+4 dBm/600 Ω (Factory setting)	0 dBm/600 Ω	–3 dBm/600 Ω	–20 dBm/600 Ω

Monitor output headroom settings

Channel	Ref. No.	Output headroom and Switches state (: Knob position)			
L	S900				
R	S1000	20 dB (Factory setting)	18 dB	16 dB	12 dB

Monitor output level switching (fixed or variable)

When the variable level is selected, the level is adjusted with the PHONE level control knob.

Channel	Ref. No.	Setting and Switch state (: Knob position)	
L	S901	Fixed	Variable
R	S1001	(Factory setting)	

1-11. Displaying Setup Extended Menu

The extended menus of the setup menu are usually not accessible. To display them, set the bit-1 of the DIP switch S1502 on the SS-89 board to ON.

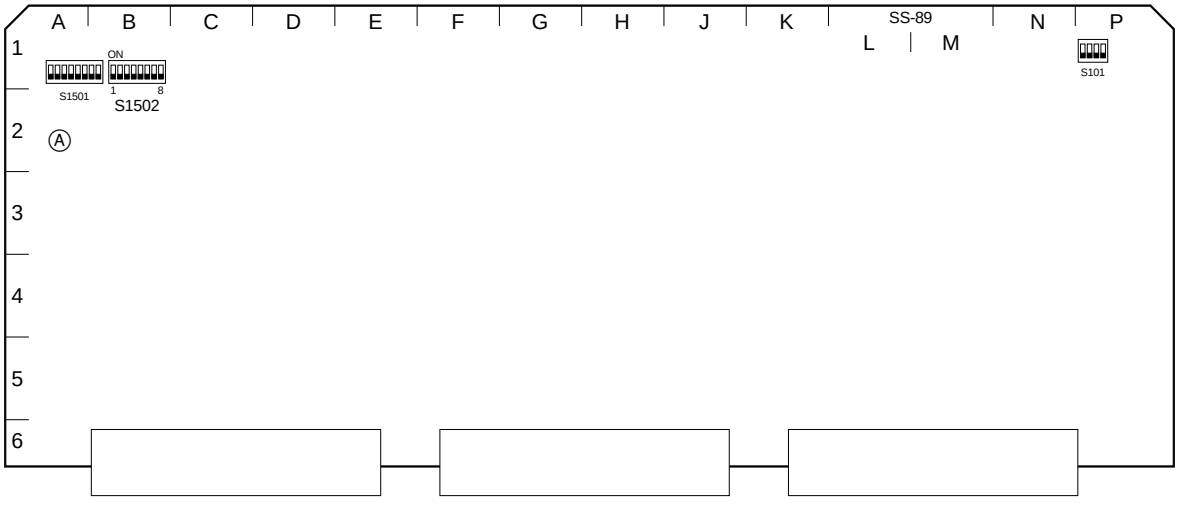
Note

For details on H-, 9- and B-series items, refer to the operation manual supplied with the unit.
For details on F-series items, refer to the maintenance manual, volume-1.

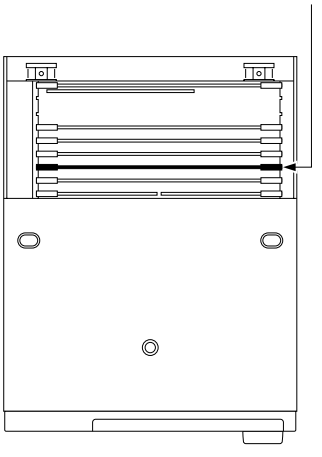
Ref. No.	Bit	Name	Description	Factory setting
S1502	1	EXTENDED MENU	OFF (OPEN) : Not display extended menu of setup menu ON (CLOSE) : Displays extended menu of setup menu	OFF (OPEN)

Note

Never change the settings of the switches except above.



SS-89 Board (Side A)



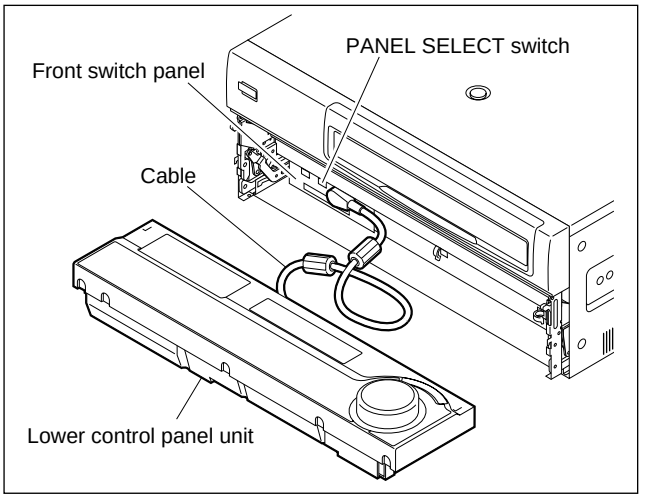
< Top View >

Note

Refer to Section 1-16 for removing and reattaching the plug-in boards.

1-12. Removing/Reattaching Lower Control Panel Unit

The lower control panel unit is detachable from the main unit, therefore operation with placing the single panel unit on the table as a keyboard of a personal computer is possible. (The length of the connected cable is about 62 centimeters.)



Not only connecting the cable to a CONTROL PANEL connector in the front switch panel, but connection between the cable and a CONTROL PANEL connector in the rear connector panel provides operating the lower control panel. After connection, set a PANEL SELECT switch on the switch panel as follows:

Connector to be connected to lower control panel unit	Setting of PANEL SELECT switch
Front (on the switch panel)	FRONT side
Rear (on the connector panel)	REAR side

Settings when connecting the two lower control units

When connecting the two lower control units to one MSW-A2000/A2000P, select which operation to enable by setting from the setup extended menu ITEM-117.

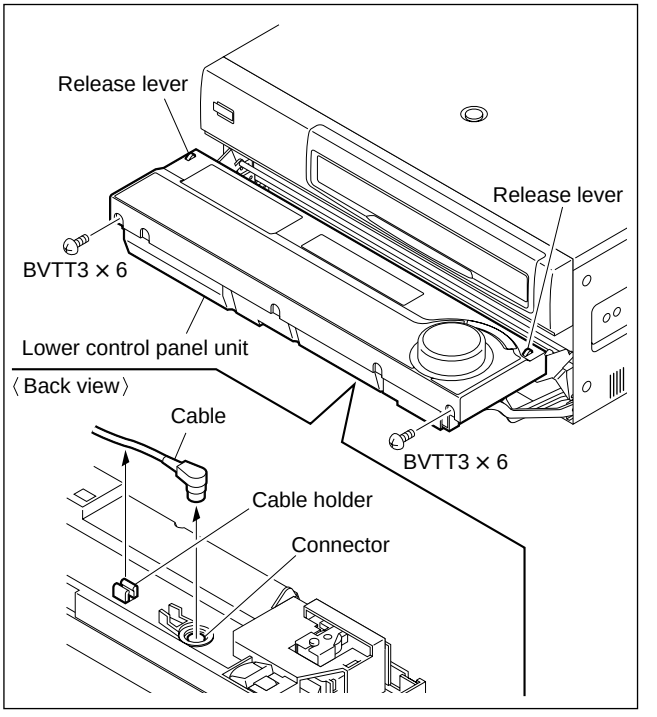
Operation enabled	Setting of ITEM-117	Setting of PANEL SELECT switch
Front-side panel	EXT or PARA	FRONT side
Rear-side panel	EXT	REAR side
Both panels	PARA	REAR side

Note

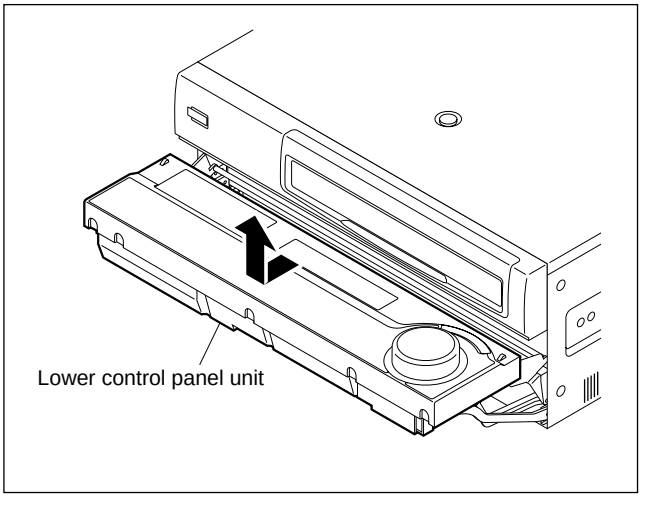
ITEM-117's factory setting : EXT

Removal/Extension of the Lower Control Panel Unit

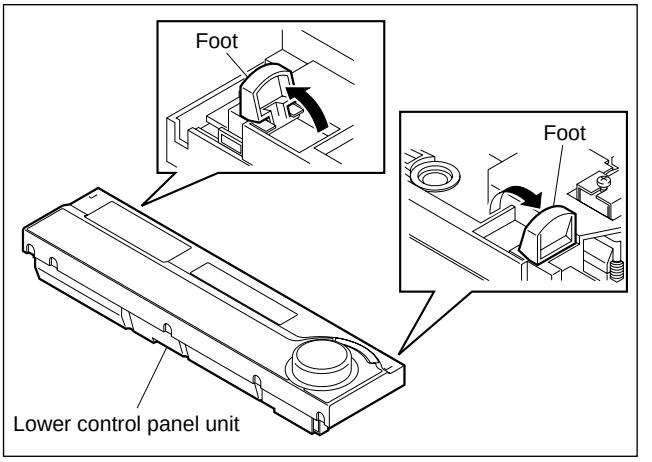
1. After pressing the release levers, open the lower control panel as shown in the figure below.
2. Disconnect the cable from the connector on the back side of the lower control panel unit and from the cord holder.
3. Remove the two screws shown in the figure.



4. Lightly draw the lower control panel unit toward you, and then lift it upward.



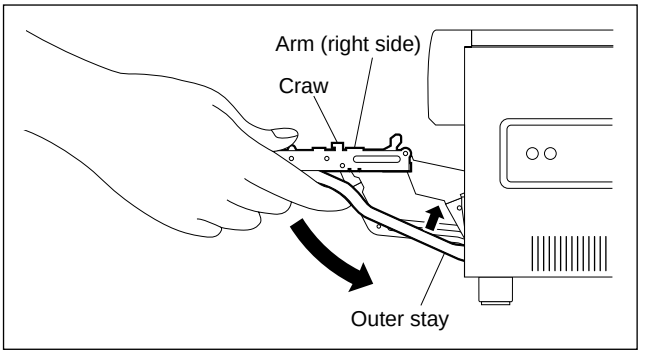
5. Erect the feet on the back side of the lower control panel unit and place it.



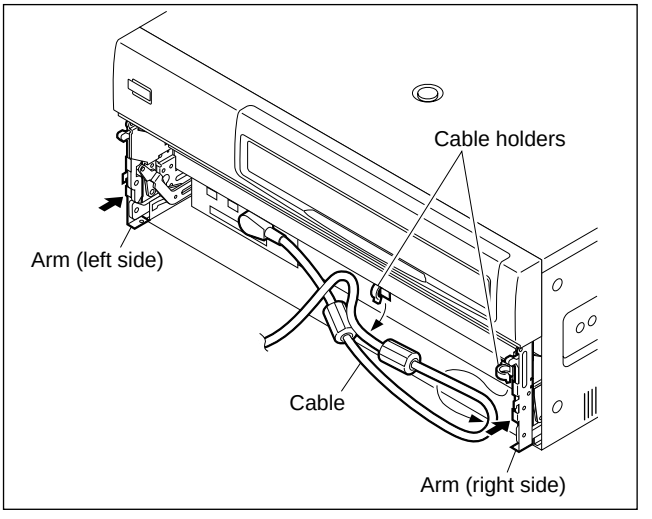
6. While lifting the outer stay by the forefinger, fold the arm in the direction of the arrow shown in the figure.

Note

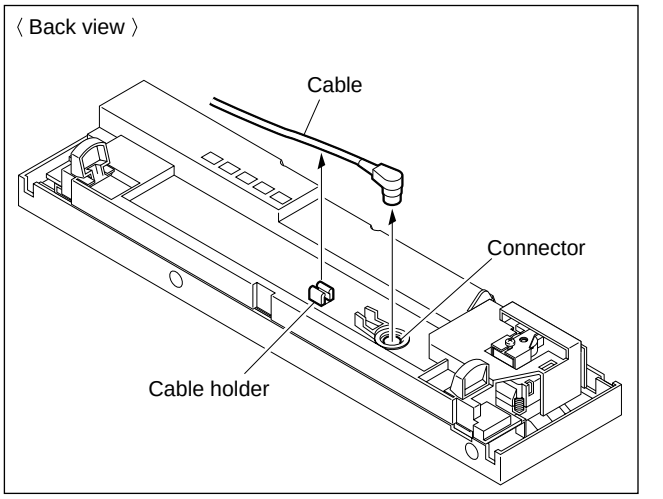
Move the forefinger off before pinching it between the arm and chassis.



7. Check that each arm is locked and unmoving state. If it rattles, lightly push in the arm until it locks.
8. Take the connecting cable off the three cord holders on the switch panel.



9. Connect the connecting cable to the connector on the back side of the lower control panel unit and fix the connecting cable in the cord holder.



Note

In the case of connecting between the CONTROL PANEL connector of the rear connector panel and the lower control panel unit, set the PANEL SELECT switch on the switch panel to REAR.

Reattachment of the Lower Control Panel Unit

Reattach the lower control panel unit in the reverse order of removal and extension, yet when reattaching, use care about following points.

- Set the PANEL SELECT switch to FRONT.
- When opening the arms, follow step 1.
- When reattaching the lower control panel unit to the arms, fit each claw of the arms with the notches on the back side of the lower control panel unit, then press.
- Check the screw holes are visible from your side before tightening the screws.

1-13. Switching Search Dial Mode

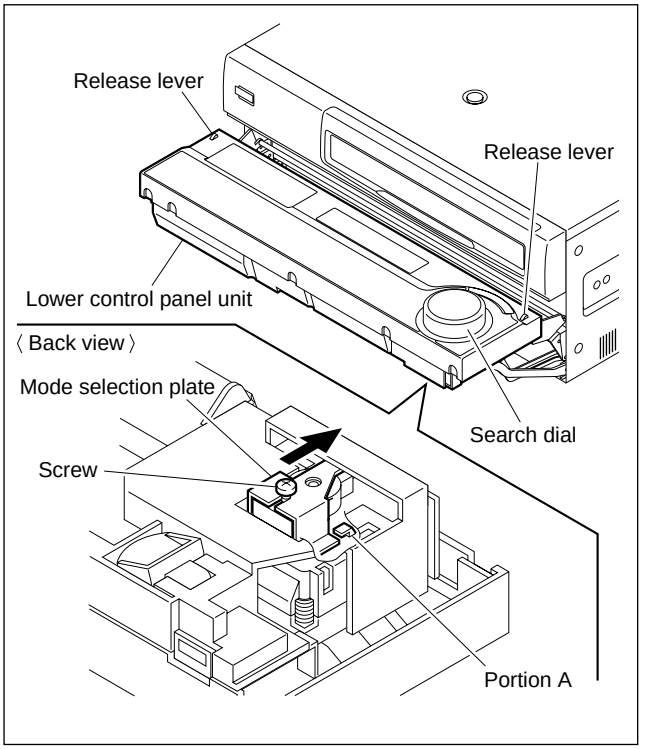
There are two kinds of operation to switch the search dial on the lower control panel between jog mode and shuttle mode.

- **SHUTTLE/JOG button selecting**
  To enter the shuttle mode, press the SHUTTLE button.
  To enter the jog mode, press the JOG button.

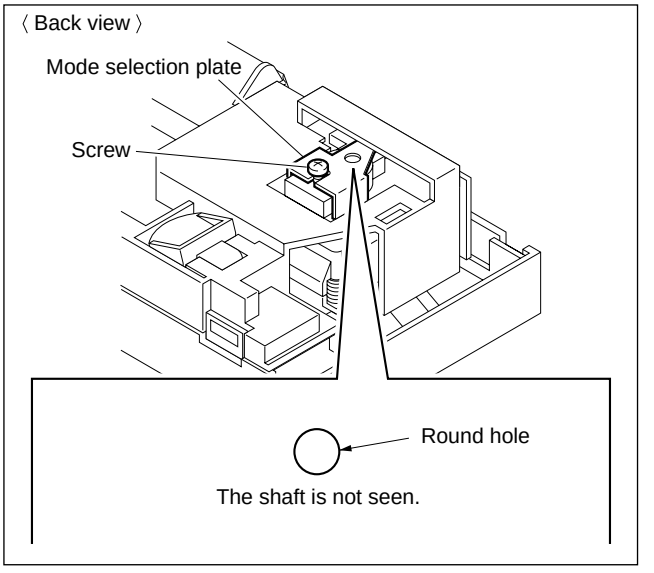
- **Search dial pressing**
  When you press the dial, the search dial toggles between shuttle and jog modes.
  It is possible to prohibit a manner of toggling.

Prohibiting Search Dial Pressing

1. After pressing the release levers, open the lower control panel as shown in the figure below.
2. Loosen a screw on the backside of the search dial as shown in the figure.
   Note
   If it is difficult to loosen the screw, remove the lower control panel unit in advance.
   (Refer to Section 1-12.)
3. Slide the mode selection plate in the direction indicated by the arrow until it contacts the portion A.

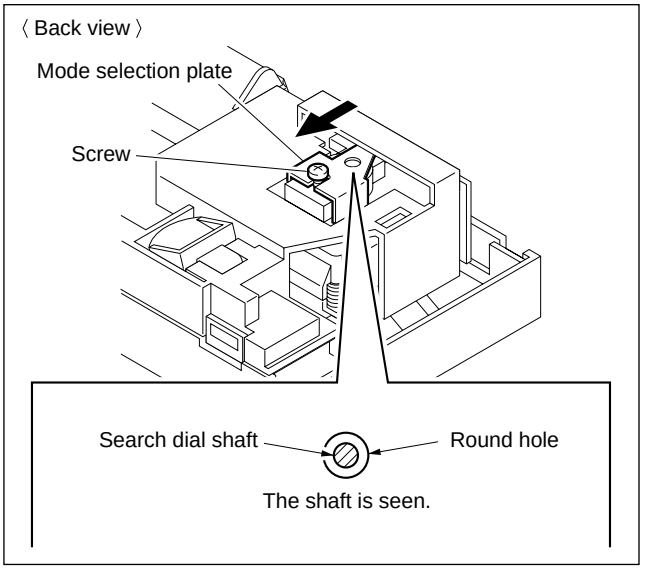


4. Check to see that the shaft of the search dial is not seen in the round hole of the mode selection plate, and then tighten the screw.



Allowing Search Dial Pressing

1. Open the lower control panel. (Operation side up)
2. Loosen a screw on the backside of the search dial as shown in the figure.
3. Fully slide the mode selection plate in the direction indicated by the arrow.
4. Check to see that the shaft of the search dial is seen in the round hole of the mode selection plate, and then tighten the screw.



1-14. Reference System

For each reference signal in this unit, either of an external reference video signal (*3) or input video signal (*4) is automatically selected according to the setting of function menu item OUT REF, the setting of setup menu ITEM-309, and the operation mode (PB/EDIT/REC) of this unit. (Refer to the table below.) Regarding the reference signal (clock) of an analog video signal in an A/D converter, the analog video signal itself is used as a reference signal under any setting.

<table>
<tr><td>Menu ITEM-309</td><td>EXT</td><td colspan="5">AUTO</td></tr>
<tr><td>OUT REF</td><td>————</td><td colspan="4">REF</td><td>INPUT</td></tr>
<tr><td>Operation mode</td><td>————</td><td>PB</td><td>EDIT (*1)</td><td>EDIT (*2)</td><td>REC</td><td>————</td></tr>
<tr><td>Video input A/D</td><td colspan="6" rowspan="4"></td></tr>
<tr><td>Video output process</td><td colspan="3" rowspan="3">External Reference Video (*3)</td><td colspan="3" rowspan="3">Input Video (*4)</td></tr>
<tr><td>Digital audio</td></tr>
<tr><td>Servo system</td></tr>
</table>

*1: When the setup menu ITEM-309 is set to “AUTO1”.
*2: When the setup menu ITEM-309 is set to “AUTO2”.
*3: REF. VIDEO input
*4: The input video signal is selected by the video input selection.

Notes

- To select the video input, open the HOME page on the function screen and use the F1 button (VID. IN).
- To set the OUT REF, open the P4 page (MISCELLANEOUS) on the function screen and use the F2 button (OUTREF).

Audio Signal Independent Recording

Even if an input video signal is selected as the reference signal, the reference signal is automatically selected to an external reference video signal for the period in which the no input video signal is input. When no external reference video signal is input, the internal-generated reference signal is automatically selected for the period.
An audio signal can be independently recorded by this system even if no reference video signal is input from the outside.

Alarm Display for Video Input Signal and Reference Signal

1. Blink of the selected input video indication area of the video input selection

This area at the HOME page on the function screen blinks when signal is not input to the connector selected by the video input selection.

2. Blink of the STOP button

The button blinks when the reference signal is not locked to an input video signal.
(This function can be cancelled in the setup menu ITEM-105.)

- When the OUT REF is set to “INPUT”:
  The STOP button blinks when the signal is not input to the connector selected by the video input selection.
- When the OUT REF is set to “REF”:
  The STOP button blinks in the following either cases.
  When no reference signal is input to REF. VIDEO connector.
  When the reference video signal (REF.VIDEO input) is not synchronized with an input video signal selected by the video input selection.

1-15. Settings and Adjustment when External Equipment is Connected

1-15-1. Settings for Time Code

To set the TIME CODE, open the P1 page (TCG/TCR SETTING) on the function screen.

When Editing with an Editor (BVE-2000, etc.) Capable of the 1st Edit

When MSW-A2000/A2000P is used by connecting to an editor, set as follows.

Button	Item (Display)	Setting
F1	TCG INT/EXT (TCG)	INT
F2	TCG PRESET/REGEN (TCG)	PRESET
F3	TCG RUN (RUN)	FREE

When Editing with Direct Machine-to-Machine (VTR to VTR)

Note

The setup menu ITEM-610: REGEN CONTROL MODE setting data must be set to “AS&IN”.

Button	Item (Display)	Setting
F1	TCG INT/EXT (TCG)	INT
F2	TCG PRESET/REGEN (TCG)	PRESET
F3	TCG RUN (RUN)	REC

1-15-2. VTR Constant Values Settings of Editor

Set the VTR constant values according to the table below when the editor which needs the setting of VTR constant values is connected. Moreover, the change of VTR constant values are required when the 525/625 system is switched by setup menu of this unit.

Model	525/625	VTR CONSTANT 1								VTR CONSTANT 2							
		Data No.								Data No.							
		1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
MSW-A2000	525/60	B0	61	00	96	07	07	03	8A*	0A	07	FB	00	81	3D	FF	5A
	625/50	B1	61	00	7D	07	07	03	8A*	0A	06	FB	00	83	4B	FF	4B
MSW-A2000P	525/60	B0	61	00	96	07	07	03	8A*	0A	07	FB	00	81	3D	FF	5A
	625/50	B1	61	00	7D	07	07	03	8A*	0A	06	FB	00	83	4B	FF	4B

*: Set the data of No.8 of the VTR CONSTANT 1 to “0A” for the following editors.

- BVE-900 ROM versions earlier than 1.08
- BVE-600 ROM versions earlier than 1.01

Note

When remote-controlling this unit by the editor, set the setup menu ITEM-401: FUNCTION MODE AFTER CUE-UP to “STOP”.

1-15-3. System Phase Alignment

An external reference video signal and analog composite signal must be input to MSW-A2000/A2000P after they are adjusted so that SC-H conforms to the specifications.

When Connecting to a Digital Switcher

Fundamentally, the system phase adjustment is not necessary.
Refer to the manual of the digital switcher for details.

When Connecting to an Analog Switcher

Perform the system phase adjustment according to the manual of the analog switcher.

To adjust the system phase of this unit, open the P3 page (VIDEO OUT CONTROL2 & MISC) and use the MULTI CONTROL knob.
When adjusting (i.e. changing the settings), press the button below to blink the current setting value, and then turn the MULTI CONTROL knob.

Button	Item (Display)
F1	SYSTEM SYNC PHASE (SYNC)
F2	SYSTEM SUBCARRIER PHASE (SC)

Notes

- Be sure to adjust in PB mode.
  The system phase does not change even if the SYNC/SC is adjusted in the REC mode, but it changes when the REC mode is shifted to the PB mode.
- The playback sound may be momentarily interrupted when the SYNC/SC is adjusted during tape playback.

1-15-4. Setup Menu Settings

Video/Sync Delay Setting “ITEM-701”

Commonly, when integrating the menu into the editing system, set to “VIDEO”.
To prevent the picture shift during EE/PB switching in the VTR-to-VTR edit operation, this setup menu is also set to “VIDEO”.

Analog Component Signal Format Setting “ITEM-709” (525/60 system only)

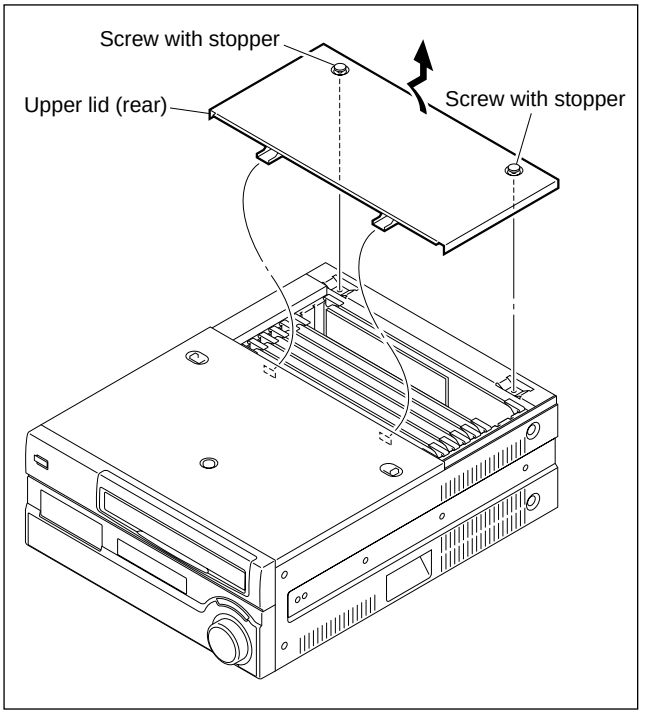
The input (SUB-ITEM-0) and output (SUB-ITEM-1) sides are set to “D-1” or “B-CAM” according to the operating system, respectively.

1-16. Removing/Reattaching Plug-in Board

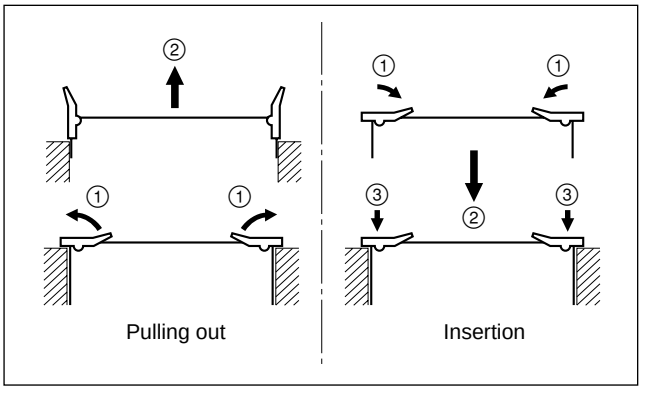
Notes

- Turn off the power and unplug the power cord before removing/reattaching the board.
- When the plug-in board is replaced, refer to the maintenance manual, volume-1.

1. Fully loosen the two fixing screws.
2. Remove the upper lid (rear) by moving in the direction indicated by the arrow.



3. Open the eject levers on both ends of the board in the direction of the arrows.
4. Hold the eject levers and slowly pull the board out.



Note

The AU-272 and EQ-84 boards should be removed together due to their structural feature.

5. When removing the EQ-84 or VPR-64 board, disconnect the harnesses from its board.

EQ-84 board :

CN101	(G-3)	6P White (Orange and Red)
CN200	(E-4)	6P White (Yellow and Blue)
CN600	(A-3)	3P White (Red)
CN700	(E-3)	3P White (Yellow)
CN1600	(A-4)	3P White (Orange)
CN1700	(E-4)	3P White (Blue)

VPR-64 board :

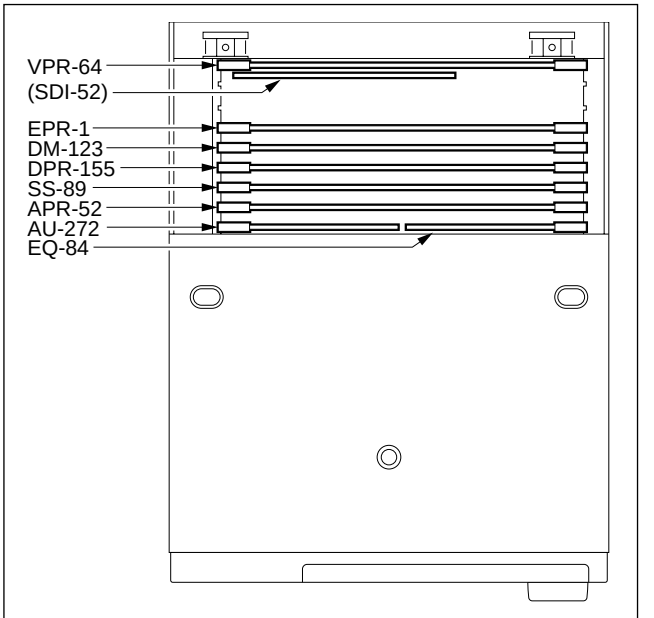
* CN100	(E-1/SDI-52)	1P Red
* CN101	(F-1/SDI-52)	1P Yellow
* CN500	(H-1/SDI-52)	1P Orange
* CN501	(F-1/SDI-52)	1P Green
* CN600	(H-1/SDI-52)	1P Blue

*: The VPR-64 board piggybacks the SDI-52 board, therefore those connectors are mounted on the SDI-52 board.

When reattaching the board, install in the reverse order of removal.

Notes

- After inserting the board, push in the two folded eject levers simultaneously to firmly connect the plug-in board to the connector on the motherboard.
- When reattaching the upper lid (rear), be sure to insert the protrusions in the square holes on the chassis, and then secure the lid.



Locations of Plug-in Boards

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